

Amendments to the Drawings

Attached are marked-up drawings for Figures 1, 2 and 3. Also attached are Replacement Sheets for Figures 1, 2 and 3.

REMARKS/ARGUMENTS

The preceding amendments and following remarks are submitted in response to the non-final Office Action mailed June 22, 2005, setting a three month shortened statutory response ending September 22, 2005. With this Amendment, claims 1, 16, 22, and 26-29 have been amended, and claim 25 has been cancelled. Claims 1-24 and 26-33 remain pending in this application. Reconsideration, examination and allowance of all pending claims are respectfully requested.

Objections to the Specification

In paragraph 1 of the Office Action, the Examiner objected to the abstract of the disclosure stating that the legal phrase “comprise” should be avoided. In paragraph 2 of the Office Action, the Examiner objected to the specification, stating that the phrase “motor 128” contained on page 8, line 6 should be replaced by the phrase “motor 122”. According to the Examiner, appropriate correction is required.

In response to these objections, Applicant has amended the abstract of the disclosure replacing the term “comprise” on line 1 of the Abstract with the term “include”. Moreover, Applicant has amended page 8, line 6 of the Specification substituting the phrase “motor 128” with the phrase “motor 122”, as suggested by the Examiner. Applicant asserts that these amendments overcome the Examiner’s objections to the Specification.

Objections to the Drawings

In paragraph 3 of the Office Action, the Examiner objected to the drawings under 37 C.F.R. § 1.84(p)(5) for not including reference signs “102” and “116” mentioned in the Specification. In addition, in paragraph 4 of the Office Action, the Examiner further

objected to the drawings under 37 C.F.R. § 1.84(p)(4) stating that reference character “136” has been used to designate both a flexible hose in Figures 1 and 2 and the primary propeller in Figures 2 and 3. According to the Examiner, corrected drawing sheets in compliance with 37 C.F.R. § 1.121(d) are required in reply to the Office Action in order to avoid abandonment of the application.

In response to these objections, Applicant has submitted herewith three corrected drawing sheets along with a marked-up copy of the old drawings indicating those changes made. In particular, Applicant has amended the drawings to add reference numbers 102 and 116 in Figures 1-2. Moreover, Applicant has changed reference number “136” used to designate the primary propeller in the drawings and the specification to now read “137”. Applicant respectfully asserts that these drawing amendments overcome the Examiner’s objections to the drawings.

35 U.S.C. § 112 ¶ 2 Rejections

In paragraph 6 of the Office Action, the Examiner rejected claims 16 and 22-28 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. With respect to claim 16, the Examiner states that the phrase “the second propeller” lacks antecedent basis. With respect to line 2 of claim 22, the Examiner states that the phrase “wherein the first is” should be replaced with “wherein the first end is”. On line 4 of claim 22, the Examiner further states that a semi-colon should be inserted after “shaft”.

With this Amendment, Applicant has amended claim 16 inserting the phrase “further comprising a second propeller disposed on the drive shaft, and” before the word “wherein” contained in that claim. In addition, Applicant has inserted the word “end”

after the second instance of the word “first” contained on line 2 of claim 22 as well as a semicolon after the word “shaft” contained on line 4 of that claim. Applicant asserts that these claim amendments overcome the Examiner’s rejection of claims 16 and 22-28.

35 U.S.C. § 102 Rejections

In paragraph 8 of the Office Action, the Examiner rejected claims 1-8, 11-12, 15, and 20-21 under 35 U.S.C. § 102(b) as being anticipated by *McWhirter et al.* (U.S. Patent No. 3,775,307).

With this Amendment, Applicant has amended claim 1 to now recite that the submergible vortex control plate is adjustably disposed above the first propeller. Claim 1 now recites in full:

1. (Currently Amended) An apparatus for use in fluid agitation comprising
 - a drive shaft having a first end and a second end wherein the first end is coupled to a selectively rotatable power source;
 - a first propeller coupled to the drive shaft; and
 - a submergible vortex control plate adjustably disposed above the first propeller.

Antecedent support for this amendment can be found, for example, on page 6, lines 9-17 of the Application.

Applicant respectfully submits that the *McWhirter et al.* reference does not disclose or suggest an apparatus for fluid agitation including a submergible vortex control plate that is adjustably disposed above a first propeller. The *McWhirter et al.* reference appears to suggest a system for gas sparging including a number of vertical baffles radially positioned at spaced intervals around the lower end of a rotatable shaft. As can be seen in Figure 1, for example, the vertical baffles in *McWhirter et al.* may be in the form of a number of relatively short vertical baffles (9a,9b,9c) and a number of relatively

long vertical baffles (12) arranged in a spoke-like configuration about a rotatable shaft (2). As described in col. 6, lines 22-25, a number of vertical posts (13) can be used to support the relatively long vertical baffles (12) radially in place relative to the shaft (2).

Unlike the apparatus recited in amended claim 1, nothing in the *McWhirter et al.* reference appears to disclose or suggest a submergible vortex control plate that is adjustably disposed above a first propeller. In contrast, and as discussed above, *McWhirter et al.* appears to suggest a number of vertical baffles (9,12) that are fixed in position using a number of vertical posts (13). Accordingly, Applicant respectfully asserts that amended claim 1 is not anticipated by the *McWhirter et al.* reference.

Because amended claim 1 is patentable, dependent claims 2-8, 11-12, 15, and 20-21 are also patentable for the reasons stated above, and since they contain additional limitations not disclosed or suggested by the cited prior art.

In paragraph 9 of the Office Action, the Examiner rejected claims 22 and 29-32 under 35 U.S.C. § 102(b) as being anticipated by *Karliner* (U.S. Patent No. 5,744,072).

With this Amendment, Applicant has amended independent claim 22 to now recite the additional limitation of a submergible vortex shield adjustably disposed above a first propeller, which Applicant submits is not disclosed or suggested by the *Karliner* reference. In similar fashion, Applicant has amended independent method claim 29 to now recite the step of providing an adjustable vortex shield, which Applicant further submits is not disclosed or suggested by the *Karliner* reference. Since amended claims 22 and 29 are patentable over *Karliner*, Applicant asserts that dependent claims 23-24, 26-28, and 30-33 are also patentable for the reasons stated above, and since they contain additional limitations not disclosed or suggested by the cited prior art.

In paragraph 10 of the Office Action, the Examiner rejected claims 1-5 and 9-10 under 35 U.S.C. § 102(b) as being anticipated by *WO 02/38510 A1*.

Applicant respectfully asserts that the *WO 02/38510 A1* reference fails to anticipate the apparatus of claims 1-5 and 9-10. The *WO 02/38510 A1* reference discloses an aerator/mixer that is supported upon a platform carried by a number of pontoons. As shown in Figure 2 of that reference, the apparatus includes a vortex shield (31) that is suspended from a number of cross members (24) of a pontoon (20). In describing the vortex shield, *WO 02/38510 A1* makes clear that the vortex shield is not adjustable:

A vortex shield 31 is rigidly suspended from the cross members 24/24a in a plane substantially parallel to the plane of the liquid surface, below the liquid surface. The vortex shield 31 is a flat perforated plate and is suspended directly above the propeller 7 of the aerator/mixer. The vortex shield 31 prevents a vortex from forming in the liquid above the propeller 7 and thus inhibits cavitation in the liquid, which would damage the propeller. It is important that the vortex shield is rigidly suspended, so that it cannot rise above the water surface, since this would allow the propeller vortex to draw air downwards, causing cavitation around the propeller.

Id. at page 7, lines 4-11 (emphasis added). Thus, as can be clearly seen above, *WO 02/38510 A1* describes a vortex shield that is rigidly suspended above a number of cross members.

In contrast to *WO 02/38510 A1*, amended claim 1 recites a submergible vortex control plate that is adjustably disposed above a first propeller. As discussed on page 9, lines 11-19 of the Application, the ability to adjust the vortex shield position may provide a desired operating characteristic to the apparatus during operation. In some applications, for example, the vortex shield position could be adjusted depending on other operating characteristics such as the angle and/or depth of the drive shaft, which can affect the

formation of vortices within the water. Accordingly, since the *WO 02/38510 A1* reference appears to suggest an opposite configuration in which the vortex shield is rigidly suspended to a number of cross members, Applicant respectfully asserts that claims 1-5 and 9-10 are not anticipated.

35 U.S.C. § 103 Rejections

In paragraph 12 of the Office Action, the Examiner rejected claims 17-19 under 35 U.S.C. § 103(a) as being unpatentable over *McWhirter et al.* (U.S. Patent No. 3,775,307). In paragraph 13 of the Office Action, the Examiner rejected claims 23-24 under 35 U.S.C. § 103(a) as being unpatentable over by *Karliner* (U.S. Patent No. 5,744,072). In paragraph 14 of the Office Action, the Examiner rejected claim 33 under 35 U.S.C. § 103(a) as being unpatentable over *Karliner* (U.S. Patent No. 5,744,072) as applied to claim 32 above, and further in view of *McWhirter et al.* (U.S. Patent No. 3,775,307). In paragraph 15 of the Office Action, the Examiner rejected claims 6-8, 11-12, 14-21, and 25-28 under 35 U.S.C. § 103(a) as being unpatentable over *Karliner* (U.S. Patent No. 5,744,072) taken together with *WO 02/38510 A1*. Finally, in paragraph 16 of the Office Action, the Examiner rejected claim 13 under 35 U.S.C. § 103(a) as being unpatentable over the reference combination as applied to claim 11 in paragraph 15 above, and further in view of either *Rajendren* (U.S. Patent No. 4,844,843) or *Inhofer et al.* (U.S. Patent No. 4,240,990).

For reasons similar to that stated above, Applicant respectfully asserts that none of claims 6-8, 11-21, 23-28, and 33 are obvious in view of the cited prior art references. As discussed above, claims 1 and 22 now recite the limitation of a submergible vortex control plate (claim 1) or shield (22) adjustably disposed above a first propeller. In

addition, method claim 29 has been amended to now recite the step of providing an adjustable vortex control shield.

Applicant respectfully asserts that none of the cited prior art references, either alone or in combination, disclose or suggest a submergible vortex control plate or shield, as recited in independent claims 1, 22, and 29. Since the cited prior art fails to disclose each and every element of independent claims 1, 22, and 29, Applicant asserts that these references further fail to disclose each and every element of those claims depending therefrom. As such, Applicant asserts that claims 6-8, 11-21, 23-28, and 33 are not obvious in view of the cited prior art references.

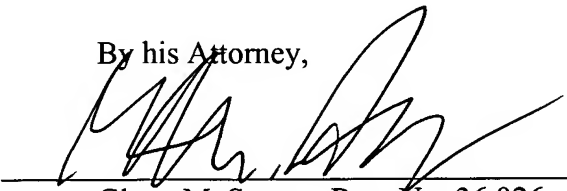
Reexamination and reconsideration are respectfully requested. It is respectfully submitted that the claims are now in condition for allowance; issuance of a Notice of Allowance in due course is requested. If a telephone conference might be of assistance, please contact the undersigned attorney at (612) 677-9050.

Respectfully submitted,

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By his Attorney,

Date: Sept. 22, 2005


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Applicant: Daniel J. Durda
Serial No.: New US Patent Application
Filed: April 15, 2004
For: AERATOR
Docket: 1015.1126101
Sheet 1 of 3

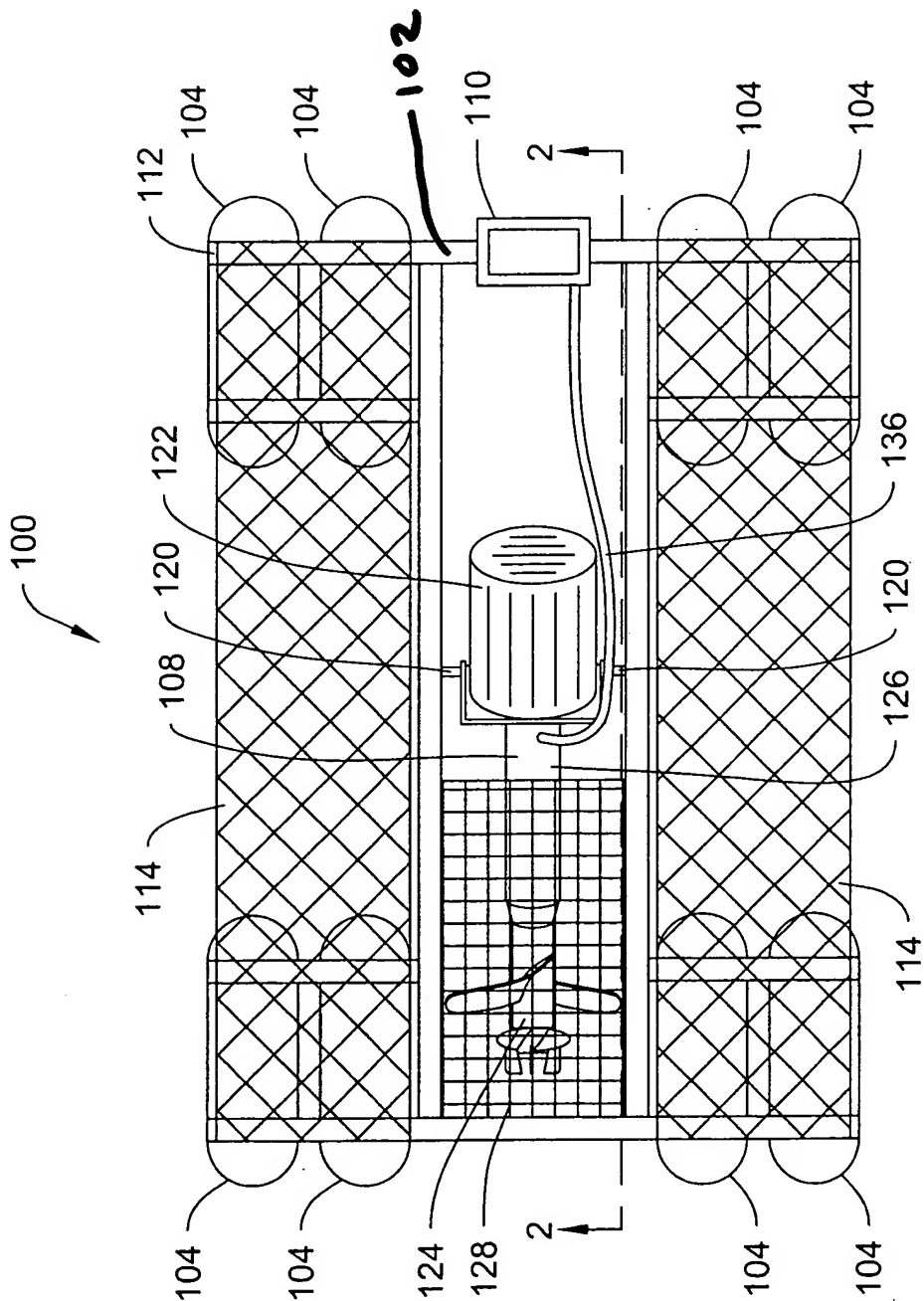


Figure 1

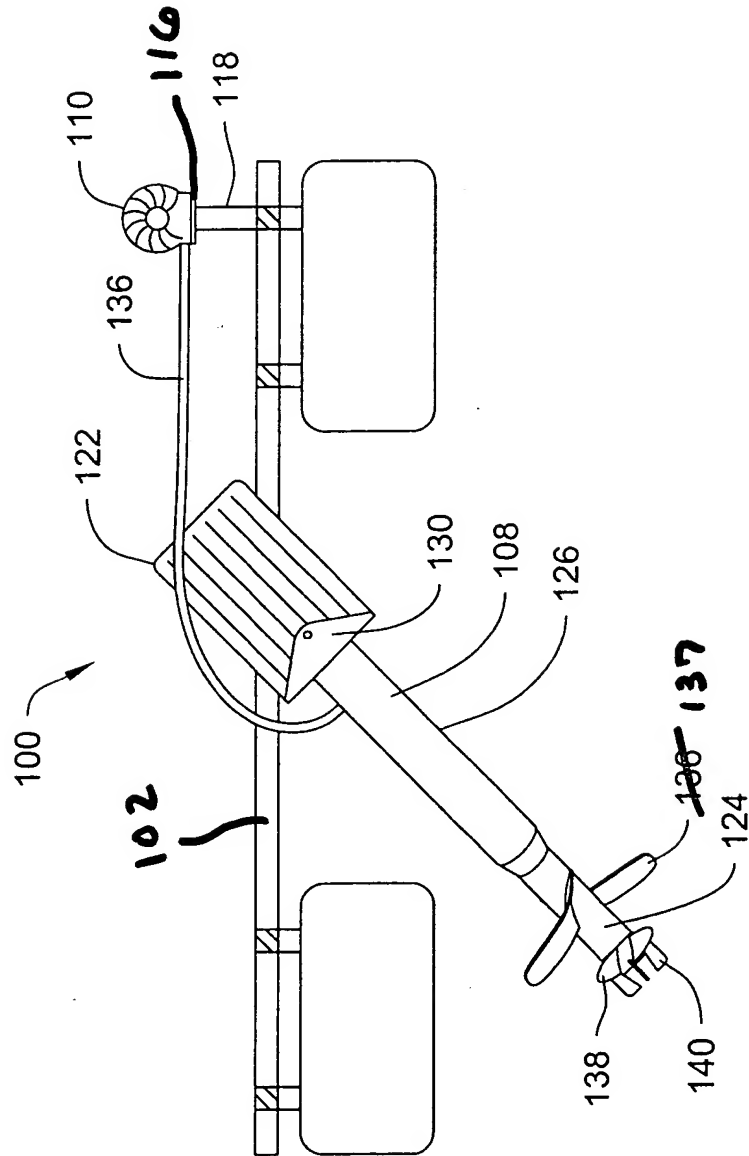


Figure 2

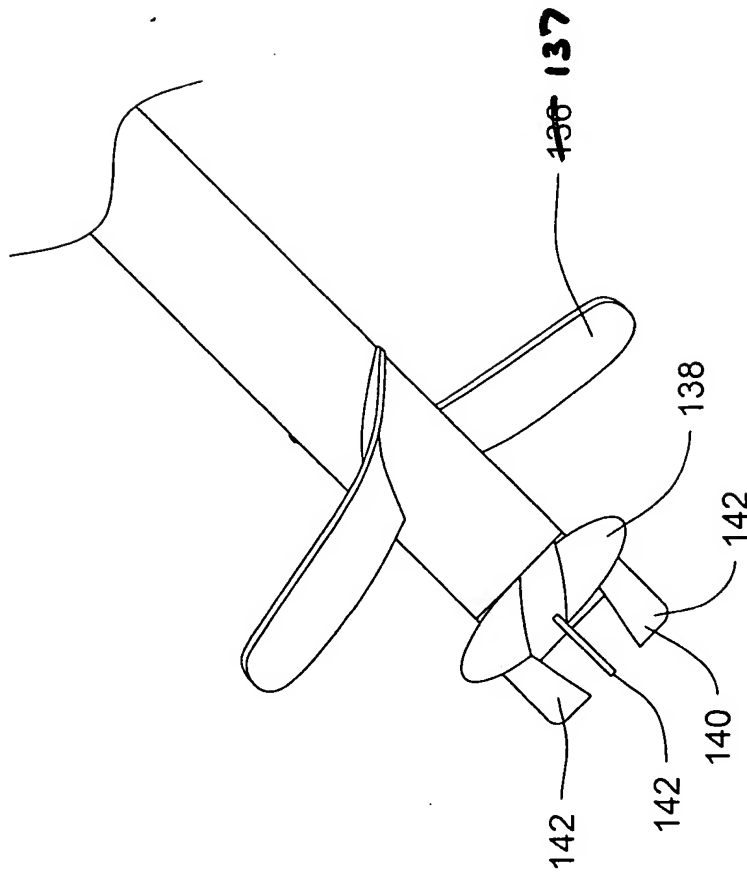


Figure 3